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is not less pleasing to observe, than it must be gratifying to the philanthropist to learn, that when they are once made acquainted with both, and have also become sensible of the universal protection afforded by British humanity and British laws, they undergo so great a moral alteration, that too much pains cannot be taken to bring about so desirable a change, or to protect those children of the soil from the acts of violence and injustice to which they may be exposed in the midst of a convict population.

XXII.—*Diary of an Ascent of the River Corentyn in British Guayana, in October, 1836.* By Robert H. Schomburgk, Esq.,  
Corr. Mem. R. G. S. Read February 13th, 1837.

HAVING, during the season of 1835-6, explored the river Esse-  
quibo into  $3\frac{1}{4}^{\circ}$  N., and the river Rupununy into  $2\frac{1}{2}^{\circ}$  north latitude,  
it seemed desirable to make choice of some other of the great  
rivers of Guayana; with the hope that by pursuing the stream  
towards its source, we might be enabled to penetrate into the  
interior towards the Sierra Acaray; and also might at the same  
time investigate the capabilities of the adjacent country for sup-  
plying the demands of an increasing colony. In accordance,  
therefore, with a plan laid before his Excellency Sir J. Carmi-  
chael Smyth, the river Corentyn was selected for this purpose.  
The little knowledge which the colonists had of this river, and  
the reports of those who had visited its lower regions occasionally,  
and painted its fitness for colonization in very favourable colours,  
made a further examination appear necessary. In order to be  
able to dedicate my attention uninterruptedly to the chief object  
of the expedition, I engaged Mr. Vieth as ornithologist, and Mr.  
Heraut, who accompanied me during my former expedition, as  
draughtsman; in addition to which Lieutenant Losack, of the  
69th Regiment, and Messrs. Cameron and Reiss, offered to  
accompany me as volunteers.

September 2, 1836. We quitted Demerara for Berbice: so  
little is the navigation of the Corentyn known, that I found it  
impossible to get a conveyance direct for that river. I was there-  
fore obliged to charter a schooner in Berbice to convey us to  
Plantation Skeldon, on the western bank of the river Corentyn,  
where we arrived on the 9th September, and were received with  
every kindness and hospitality by the proprietor, Mr. Ross.  
According to the arrangements I had made with the Post-holder,  
Mr. de Wolff, I expected to find a sufficient number of Indians at  
the plantation Mary's-hope to convey me to the Post. Mary's-

hope is situated at the mouth of the river; and as I was anxious to determine its geographical position, I proceeded thither next morning, and found, to my regret, only a few Indians, and by no means sufficient to man the corials, which consequently delayed me some days, during which I determined its position to be in latitude  $6^{\circ} 2' 15''$  N., and longitude  $57^{\circ} 1' 47''$  W.

*September 19.* Pursuing our way up the first or sea reach of the river Corentyn for about forty miles, with an average width of one mile, we arrived at the Post of Oreála. The banks of the river thus far are generally low, but very fertile, and well calculated for the cultivation of the staple commodities. At present they are almost uninhabited; with the exception of two wood-cutting establishments on the British side of the river, no inhabitants are to be traced from Plantation Skeldon to within a few miles of the Post. Whole tracts of the most fertile land are left uncultivated, and are the undisputed haunt of the jaguar and the fleet deer. It is not only the fertility of the soil that recommends this tract for cultivation, but the easy communication which might be established between the rivers Corentyn and Canje, an affluent of the Berbice, deserves consideration.

The course of the river is almost due south in ascending, until, in the vicinity of the Post, it takes a somewhat eastern bend: here the soil changes, and a range of low hills, about fifty feet high, and from their white appearance called chalk hills, are observed on the river's western bank. On one of these hillocks is at present the site of the Post, where we intended to sojourn for a few days, to procure a crew sufficiently strong for manning our corials. I found great difficulty in effecting this; sickness prevailed to an alarming degree in the Indian settlements, and a general dislike was shown to venture on such an undertaking as the ascent of the Upper Corentyn, which, according to their superstition, is believed to be inhabited by evil spirits, besides the apprehension of coming in contact with the Caribs, a nation dreaded by every other tribe. Many an artifice was therefore necessary to induce them to join us.

There are several settlements of Indians here under the care of the Post-holder: the number of individuals may be 650, viz. Arawaaks, 300; Warrows, 250; Caribs, 90. Like the generality of the Indians they cultivate provisions, and live by hunting and fishing, while the chief part of their time is spent in the hammock. It is only lately they have commenced assisting wood-cutters to fell timber, or to split staves, for which they receive monthly wages, or a stipulated sum for a certain quantity of staves, or squared timber. It is a pity that the credulous Indian should be imposed upon by many of the unconscientious wood-

cutters, who undervalue his work, or pay him in articles with an enormous profit. If he discover hereafter that he has been deceived, his natural indolence will find a ready excuse for returning to the hammock, and more injury will be done to the cause of civilization than can be remedied by the friends and promoters of so desirable an object. Ought not the Indian to be guarded against the imposition of the colonists?

The situation of the Post is in latitude  $5^{\circ} 16' 38''$  N., and longitude  $56^{\circ} 53' 31''$  W. by chronometer. In examining the hills called by the Arawaaks Oreála, by the Warrows Alivavara, I descended by a hollow which had been formed by freshes; and after having gained the river, I had a view of a section of the formation. It was composed of horizontal beds of a siliceous conglomerate, intermixed with red sandstone, with small grains of slightly-rounded quartz, a calcareous\* and often schistose bluish clay, beds of loose sand, and of a substance resembling shale. The unctuous and blue schistose clays however predominate. I did not discover any organic remains. These cliffs stretch north and south for about three miles. In their rear extend Savannahs for a considerable distance; they are clothed with short grass, but the soil is not fertile, and soon exhausted.

Immediately opposite Oreála, on the eastern shore, is *Semira*, the site of a former Moravian mission, and ten miles higher up, on the western bank, is the deserted site of another establishment of these persevering and truly Christian men.

*September 21, 22.* While here the autumnal equinox occurred, and I took a set of hourly meteorological observations † for forty-eight hours. The situation of the barometer was about one hundred feet above the sea.

*September 25.* Having completed our arrangements, we quitted Oreála. While stopping at Mr. Layfield's, in latitude  $5^{\circ} 15'$  N., I measured a base line to determine the width of the river, and found it to be at high-water mark 1230 yards, the average rise of the tide 6 feet; the velocity of the current increased by the ebb tide about three miles an hour; the temperature of the water was  $82^{\circ}.5$  Fahr. One mile east of Mr. Layfield's are two islands, the smaller called Bunjabanabú, the larger Killikagro. From the eastern end of the latter extends a considerable sand-bank towards the western bank of the river; but on the eastern shore is a channel deep enough for vessels of fifty tons. While approaching *Asirikani* or Long Island, a sudden rise of the water or *bore* of three feet high occurred, and dashed

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\* Lime is very rare in Guayana. Dr. Hancock observes that he never met with anything that would effervesce with an acid on the Essequibo, Parme, or Orinoko.

† Preserved for reference in the library of the Society.

violently against the shore; this was repeated three times; it usually takes place at the first setting in of the flood-tide, and is highest at the equinoxes. The natives call it Abapúri.\* The river, although here are two islands, is by no means narrowed in; but half a mile further north it takes a sudden bend, which may help to cause the rapid rise of the young tide.

We observed the Abapúri at 4h. 45m. P.M. off Asirikani, when, according to calculation, the flood-tide must have set in at the mouth of the Corentyn at 11h. 50m. A.M. If the rise of the wave was therefore the indication of the young flood, the tide wave travels in five hours a distance of sixty miles by the windings of the river. I did not hear that the Corentyn below Asirikani offers a similar phenomenon, but a bore of five feet rise is said to occur opposite the Indian settlement *Wasiappo*, fourteen miles higher up the river. We reached before nightfall the second range of clay hills, called by the Indians *Siprúta*. They are of less height than the former, and their formation made me almost suppose, when on my return from the cataracts I examined them more closely, that they might contain coal. Other features strengthened me in my supposition; and as I do not doubt that this geological feature extends to Berbice, its formation there may be more developed, and indicate a discovery which might be of great benefit to the colony. The composition of the beds consisting in alternating substances, as clay, shale, and sand, as described before, is analogous to the coal measures of Poland; and scattered portions of a bituminous substance, which I found on sandbanks in the river, first drew my attention to the fact. Hereafter I hope more fully to investigate the subject. At *Siprúta* the river is somewhat hemmed in by the hillocks, and takes a north-eastern, and afterwards southern and south-western course,† describing almost a circle; a due south course across the land leads from *Siprúta* in three quarters of an hour to *Paerurú*, the opposite point, while six hours are required to follow the river's winding course. The luxuriant vegetation of the river appeared to increase the further we advanced. I readily recognised all the useful timber-trees for which Guayana is so much famed. The soil is equal, if not superior, to that of the Essequibo, and rests upon a clayey substratum. The banks in the vicinity of *Paerurú* consist of ochrous clay. The river now takes a decided western

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\* This bore is observed in several rivers in Guayana, as well as elsewhere, which are funnel-shaped. The different tribes on the coast, we learn from Dr. Hancock, usually give it some name, signifying *head of waters*, or *mother of waters*; and in connexion with this have many strange stories to tell of the *Luku-qui-yaha*, mermaid, or "watery mamma," as they translate it.—Ed.

† It must be understood that these courses have reference to tracing the river upwards towards its source.

course : rather more than two miles west of Paerurú is the brook Epira, inhabited by many Arawaak Indians. We visited them on our return, but were obliged to wade through swamps and to cross the brook several times before we reached their settlement. The Manicole palm is almost the only tree which delights in the boggy soil, which extends between the river and the settlement. Their huts are built upon sandy hillocks, not more than twenty feet high, which extend in a south-western direction. I consider them a spur of those at Kayiwa. The number of Indians that live here may amount to 150 ; and by paths across the Savannahs they keep up a regular intercourse with those at the Post of Oreála. At the first Carib settlement, called *Kayiwa*, (or hard sand,) where we resolved to stay until the turn of the tide, we found that high water was at 11h. 5m. Consequently, at 10h. 39m., at full and change, and 5 hours later than at the mouth of the river, distant seventy miles, the rise amounted to somewhat more than thirty inches. The settlement is on a sand-hill, about 100 feet high, close to the river, and is in latitude  $5^{\circ} 4' 10''$  N. These hillocks extend farther inland, in a south-western direction. About a mile from Kayiwa we saw another cliff, about fifty feet high, where clay and bog earth were the most prevailing substances. The clay is of the finest quality, and resembles pipe-clay. The Indians have a tradition that they are inhabited by a large snake, which from time to time goes to drink the water of the Corentyn, and its passage thither has deprived the cliffs of vegetation. At the south-eastern base of these hills the river, after a course due east for 40 miles, (tracing it downwards) turns abruptly to the N.W., and pursues a very meandering course for 30 miles to the northward, forming bends about 6 miles in diameter. The banks of the river, as we ascend, assume their usual height of about twelve feet. The rivulet Matappie joins at this angle from the eastward. It is said to be connected with the river Copename, and by it the Maroon Negroes keep up a communication between the latter river and the Corentyn. Thirteen miles beyond, in the parallel of  $5^{\circ}$  N., we first observed sandstone rocks *in situ*, and shortly passed several rocky islets. On the right or south shore joined the river *Cabalaba*, which I ascended for a few days as far as it was navigable. This river, which is about 100 yards wide at its mouth, exhibited all the luxuriance of a rich soil ; numerous shrubs of the wild Arnotto margined its banks, and the splendid flowers of the *Cassia Calyantha* towered over them. The river is very winding, and is considerably wider at six miles distance from its mouth : the water is of the colour of ochre, and apparently muddy, as the Corentyn, though, when put into a glass, it is clear. The average

depth is twelve feet. I have generally found the water of these two streams to be from  $5^{\circ}$  to  $10^{\circ}$  of Fahrenheit higher temperature than the air. The Cabalaba reminded me much of the Upper Rupununy, from the colour of the water, its numerous short bends, its sandy spits, and its similar fish, including the sting-ray. Hills sixty feet high occur about twelve miles from its mouth, and erratic blocks become frequent; occasionally a rocky islet, and its usual companion the Aromatic Guava growing luxuriantly upon it. Numerous Sacki Winkis (*Hapale Spec.?*) jumped with agility from branch to branch. The water-hare, a species of cavia, appeared likewise frequently on the banks, and plunged into the river as soon as it espied us. The sound of falling water attracted our attention, and discovering the mouth of a tributary stream to the S.E., we forced our way through the branches which almost hid the entrance, and discovered a cascade about twenty feet in height, called by the Indians *Itáfe*. The rocks are of sandstone, in which I found vestiges of feldspar. I was astonished to find a number of blocks of a fine-grained whitish sandstone, which I could not trace to the parent rock. They are used by the Indians as grindstones, and are of excellent quality, and well worth the trouble of procuring by the colonists.

We slept this night on a sandy spit, and while occupied in constructing our tents we heard a report of a gun to the eastward, which our Indians ascribed to the Maroon Negroes, a signal which the outposts generally adopt to inform the camps of the presence of strangers. The Indians told us that these Maroons frequently visit the Cabalaba on fishing expeditions: indeed, by means of this stream and its tributaries, as well as those of the rivers Copename and Saramaca, they are said to keep up constant communications with the Corentyn. In order to show that we were equally on the alert, we fired a small cannon, and we were not a little astonished when Mr. Vieth, who had remained with the rest of our party at Tomatai, eleven miles distant, told us on our return that the report of our gun had been heard at that settlement.

*Oct. 4.* We started this morning early in order to reach the cascade of *Avanavero*, the aim of our present excursion. The morning was misty, and we could scarcely see more than twenty yards before us. The thermometer stood at  $77^{\circ}$  Fahr. at six o'clock, while the water had a temperature of  $82^{\circ}$ . We passed numerous rocky islets stratified, the strata dipping  $65^{\circ}$  to the south, and apparently of trappean formation. No where had I seen the black crust of oxide of manganese in such thick layers upon the rocks as here. Sandy spits projecting into the river are always the first indication of approaching rocks and islets. It is on

these sandy points that the deposits called *pegas* are formed of half-decayed vegetable mould from leaves and grass which are swept from the land during the annual inundation.

Two miles further, a chain of hills, about 200 feet high, stretches east and west, through which the river has forced itself a passage, and is turned at an acute angle from its north-west to an east direction. These hills consist of granitic boulders piled upon each other, their interstices being filled with soil. A luxuriant vegetation and fine timber-trees now cover these granitic heaps. At their base rushes the Cabalaba over a rocky barrier, forming the cascade of Avanavero, about twenty-five feet in height. The tract of granite is barely a mile in width, above which the river flows again uninterruptedly, its breadth being about 200 yards. According to observation which I took on the sandy spit the night previous, Avanavero is in lat.  $4^{\circ} 47' N.$  and long.  $57^{\circ} 13' W.$

On our return to Tomatai every possible hindrance was resorted to to prevent our departure. The difficulty with which luggage can be conveyed had obliged me to curtail the stock of provisions, expecting that the Indians would furnish me with casada bread. Before I left Tomatai, on our excursion to Cabalaba, they had given me their promise to have a large quantity ready on my return. They advanced numerous excuses for not having complied with their promise, and desired me to wait three days longer, at the expiration of which eight or ten cakes were brought, a quantity which was not sufficient for one day's sustenance, and neither threats nor promises could induce them to sell us more. Those whom the post-holder had engaged to accompany me in my expedition did not refuse to do so, but the provisions they took with them were by no means sufficient for a lengthened period. Towards the other Indians the Caribs were overbearing, and refused them any of the provision which they had in superfluity. This may have been the reason that four of my Arawaak crew took a corial and ran away, and consequently I was the more obliged to depend upon our uncivilized Caribs. Their number is by no means great: the settlement Kayiwa, on the British side, does not muster beyond thirty men, women and children included, while the population of the three settlements, Tomatai, Pacuima, and Majari, on the Dutch side, may amount to 100 persons; many of these belong to the mixed race, the descendants of a Carib father and an African mother; they keep up a constant intercourse with the Caribs on the rivers Copename and Wayomba. The old maps represent generally a connexion between the rivers Corentyn and Nickierie by the river Maratica. I was not able to get the slightest information on the subject, but as the



Caribs who purpose visiting the settlements on the Corentyn always use that river as the high road, it is to be presumed that they are not acquainted with any other, or they would have chosen the shortest. We found at Tomatai three Macúsie women, kept in bondage by the Caribs. Only a short time ago one had attempted to make her escape, but was recaptured: what her fate was I could not ascertain, but I was told that she had been sent to Copename. This nefarious trade is, therefore, still carried on; and from several observations which fell from the Caribs, we suspected that a new expedition to the Macúsies was in contemplation; and further circumstances, as will be seen in the sequel, proved that our suspicions had been too well founded.

Tomatai is in  $4^{\circ} 59\frac{1}{2}'$  N. and  $57^{\circ} 16'$  W.

Oct. 11.—I was rather surprised to find that three corials with Caribs, which were entirely unattached to my expedition, followed us, though at first keeping behind; the next day they joined us. I saw clearly through their policy: the Caribs were thus by far the more numerous party, and while I could not prevent it, I adopted every precaution to render any bad intentions from their side harmless: our corials were chained and locked every night, and my own, manned with Warrows, kept always in the rear when under way: our whole party, thus increased by unwelcome guests, amounted to fifty-eight persons. As we ascended, the Corentyn still came from the west for about twelve miles. Above Tomatai the river is studded with rocks; some hills about 150 feet high occur on the northern bank. I consider them an offset of the Twasinkie\* mountains which I passed in 1835, on the river Essequibo, in about the same parallel; their geological character was similar. A small stream, called *Assiprua*, here falls in from the northward. South of the island *Alapalissa*, the rocks assumed a north and south direction, and in their gigantic forms resembled much those of Accra Moucra on the Essequibo. The banks of the river in the vicinity of *Alavarlae* island are ten to twelve feet high, and consist of a species of clay which the Indians call *alina* or *acurú*; they use it for the manufacture of pottery. The substratum was an ochrous clay, covered with rich mould, in which trees and plants appeared to thrive luxuriantly. The wild cotton which I found here is of a superior texture, and the samples which I carried with me to the coast were much admired. We experienced on the night of the 11th a severe thunder storm; the rain descended in torrents with the noise of a cataract, and I found that the rain fallen in eleven hours amounted to the enormous quantity of 5.7 inches. We encountered next morning the first

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\* See Journal R. G. S., vol. vi. p. 231.

rapid of consequence in the vicinity of the island *Bacacai*, about seventy miles direct distance from the sea. After we had passed the island, our course lay towards high ground, but before we reached it, the river presented another of those scenes of confusion which are met with so frequently in the rivers of Guayana; many of the boulders were forty feet high, and a large decayed trunk which the current, during the inundation, had swept across two or three boulders, where it might have served in lieu of a bridge, proved that the Corentyn, in that place, is, during the rainy season, at least twenty feet above its present level. The nearer we approached the hills we had seen in the distance, the stronger we found the current, narrowed in by the hills, which we estimated 120 feet high: a slight bend of the river increases the velocity, and almost an hour elapsed before we could overcome its influence: the current ran at the rate of four or five knots. We stopped for breakfast at the foot of the hills, which had a north-west and south-east direction. The rocks appeared to be obscurely stratified, and were highly ferruginous. It is this barrier of hills that turns the river's course from the south, and causes it to flow east for about forty miles; a very striking feature in the course of this river, no trace of which appears on any of our maps hitherto; in fact, the upper part of the Corentyn, for the next fifty miles, flows on a meridian to the *westward* of a great portion of the river Berbice, whereas the former falls into the sea more than twenty miles to the *eastward* of the latter. I was told by some of the Caribs, that from here a path leads alternately over savannah and woodlands to the river Berbice, which they reached in a day and a half, easy walking. We passed many islands, where spots of whitish sand extended into the river, and which during our ascent we selected for our night's encampment. The sand, heated during the day, keeps up a high temperature long after the sun sets: at eight in the evening the air was generally 77°, the thermometer, placed in the sand, rose to 85° 3. I have frequently repeated this experiment, and found always a difference of from 5° to 8° Fahr.: this difference amounted in the afternoon often to 40°; and while at Tomatai, I observed that the white sand at three P. M. had a temperature of 128°, when the atmosphere was only 85°. On a point where the river was hemmed in on one side by numerous boulders of sandstone, on the other by a sand-bank, we halted to examine the nature of the rocks: they were of the same description as those I had seen at Itaffé and in the Cabalaba, and in consequence of their close structure and fine grain peculiarly qualified for grindstones. The boulders are often ten to twelve feet high, and sometimes as much in girth. If hereafter building stones should be wanted, this tract will afford abundant materials. These rocks are in lat. 4° 43' long. 57° 40', at nearly

the most western point of the Corentyn, as far as I have had an opportunity of visiting it.\*

Oct. 14.—Our progress was next day quite slow in a S.S.E. direction. Rocks and islands were so numerous that our scout had often to visit several passages before we could venture to attempt one with our corials. These gigantic boulders are a most remarkable feature, and though they astonished me while ascending the Essequibo, they are in the Corentyn more numerous and not less in height and size. Only a few are angular, the most of them being spheroids, or dome-shaped; all are more or less coated with the metallic lustre, which is said to arise from a coating of oxide of manganese. Where we found several smaller blocks accumulated, the place between each was filled up with that strange vitreous matter already noticed while ascending the Essequibo, which I am much inclined to consider as having been under fusion. The scene is here very interesting; the chaos of rocks, the rushing of the waters, the numerous islands which cause the river to spread upwards of one mile in breadth, each has its particular attraction; but the most striking feature was, I might say, a forest of *laccis*. Those beautiful aquatic plants were in full blossom; the light brownish scape, the thickly set flowers, naked, and of lilac colour, formed a strong contrast to the otherwise barren granitic rocks. Thousands were in flower, and their luxuriance showed how much they were delighted with the spot. I measured one of the lanceolate leaves, which I found three feet two inches long and two feet wide. Our camp was selected at a rocky islet, called by the Caribs *Akalikatabo*, in lat.  $4^{\circ} 40\frac{1}{2}'$  N.  $57^{\circ} 39'$  W.

Oct. 15.—We passed next morning a remarkable rock, called by the Caribs *Timehri*. It is not only distinguished for its size, but there are a number of gigantic figures engraved on it, one of which measures more than ten feet.† The river continues studded with rocks and islands, winding in a S.E. direction for ten miles, when it narrows to its former width, and flows directly from the S. for nearly fifteen miles.

Oct. 17.—After we had passed a turn which the river makes, we observed several hills on both sides: half an hour's further progress, and we found ourselves in apparently a large basin, sur-

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\* And from subsequent information respecting the course of the Berbice, it appears that the direct distance from the Corentyn to that river, at this point, is not nine miles, being their nearest point of approach.—Ed.

† Drawings and a particular description of these figures, I shall have much pleasure to forward to the Society on my return from the second expedition.

[They have not yet arrived.]—This is, we believe, the most eastern spot in this part of South America in which these remarkable sculptured rocks have been hitherto seen: from M. de Humboldt we learn that similar figures exist near *Caycara* in lat.  $7\frac{1}{2}^{\circ}$  N., long.  $66\frac{1}{2}^{\circ}$  W., and here Mr. Schomburgk finds them in lat.  $4\frac{1}{2}^{\circ}$  N., long.  $57\frac{1}{2}^{\circ}$ , at a distance of nearly 600 miles.—Ed.

rounded by hills, from sixty to one hundred feet high. The river was now broken up into torrents, the white flakes of foam which came sailing down as if to give us a welcome, the thundering noise of falling waters, and a cloud of mist which hung over the southern hills, all spoke in an intelligible voice that some great scene of nature was before us. It was evident that we should have to make a stay here, and I gave the necessary orders for erecting our tents: while thus occupied, the Caribs told us that we should find it impossible to get on farther; and though it was true that there was a path existing, it was only passable during the rainy season, when the river's bed was full, and the impediments much less. It struck me as peculiar that I heard for the first time of the impracticability of passing the falls before us: the hints that had been thrown out for the last two days had not specified in what the difficulties consisted, and as I had been frequently threatened in a similar way during my former expedition, and had safely passed them by perseverance, I entertained the same hopes at present.

*Oct. 18.*—This morning we reconnoitred the ground, and after the corial had been hauled over a bed of rocks, we crossed a rapid in an oblique direction, and soon stood before a pile of rocks, which when the river is full are the bed of a cataract; at present only a small stream rippled over their blackened surface. It had appeared to me from our encampment as if this place would have afforded me the possibility of drawing the corials over, but my hopes fell with every step that I advanced, enormous piles of rocks grouped together opposed obstacles even to our farther progress on foot: at times we saw chasms at our feet, and a courageous leap was necessary to cross them, or we had to wade through a stream which pushed its winding way through rocks, and disappeared as if by magic, until the subterraneous noise told us that it was rolling below our feet, and made its re-appearance where we least expected it, and were wondering from whence it came. Some of the rocks are in shelves; many exhibit circular holes partly filled with quartz pebbles. I measured one of the larger cavities and found it three feet deep and ten inches in diameter. Many of the rocks were clothed with numerous plants; a species of orchidea and an agave were the most remarkable among them; clusters of bright yellow flowers distinguished the first, while the long and slender scape of the latter, adorned with thousands of flowers, gave a picture of luxuriance even to the sterile rock. On our right we heard the thundering noise of a cataract, over which a dense cloud of mist was hovering: thousands of swallows were skipping through this cloud, rising and falling as if delighted with the constant moisture arising from the spray.

We visited the cataract afterwards, which in grandeur surpassed

any I had before seen in Guayana: the velocity with which the mass of water precipitates itself over the ledge of rocks to a depth of upwards of thirty feet perpendicular, causes the spray to form the cloud we had observed, before the cause of it was known to us.

Previous to my visit to this, which is the most western of the falls, I had followed a party of Indians, and after some labour and wading, reached a branch of the river, which divided itself in two channels; the western formed a fall, and the opening prospect on my arrival at its head was beautiful indeed; the water rushed at an angle of sixty degrees into a valley formed by gigantic piles of rocks, which we had taken the previous day for hillocks, in which belief we had been strengthened by seeing them covered with large trees; at our feet foamed the disturbed water, dashing its spray against the rocks that impeded its course; but the most splendid object was a cascade on the opposite side of the chasm: the rocks over which the water fell were clothed with a lacin, the pendulous branches of which were often five and six feet long, and the whole resembled a rich carpet: the various tints of green, the strong contrast of its flowers, and the foam of the water which rushed over it, made the scene exceedingly beautiful: we estimated the height of the fall twenty-five feet, and that on the top of which I stood at thirty feet: they are almost opposite each other; but the commotion of the waters where they met made me suppose that there was a third, which was hid from my view by an intervening island. I was for some time at a loss how to get there, but by great circuits and dint of wading, I succeeded at last, and I was richly rewarded. Three channels of the river unite at the head of the cataract, and at their junction their farther progress is obstructed by huge blocks of granite, through which they have forced a passage, and are thence precipitated headlong into a chasm full forty feet below. A large rock stands out in relief, and has been fancifully said to resemble a thigh-bone. The most western cataract is on a grander scale than the two others already described, but what they want in grandeur is fully compensated by the lovely prospect they afford, when viewed from the foot of the valley. The Indian name of this series of cataracts is *Mavari Wonotopo*. The former, or western fall, we named after General Sir Carmichael Smyth: on the latter we bestowed the name of Sir John Barrow, as President of the Geographical Society. There is a third cascade farther to the east, and which, under any other circumstances, we might have considered grand; on the rocks on the western shore here are more of the Indian hieroglyphics. The river above the cataracts is divided into numerous channels, which unite and form in one breadth the three series of falls just named.

Much as we had been delighted with the romantic scenery that

we witnessed at the cataracts, the circumstance that it appeared to us impossible to cross the rocks in our corials lessened in a great measure our enjoyment; nevertheless, the hope remained that there might be a path by which they could be avoided. I summoned the Caribs who composed part of my crew, and which I had selected as guides, as they were the only nation acquainted with the upper Corentyn, and questioned them closely on a subject so important to our farther progress, but to no purpose: they did not deny that they passed these impediments during the rainy season, in order to cross by a path, which was two days' journey above the cataract, over to the Essequibo; but that at present we could not pass. In order to serve as a stimulus for exertions, I now offered a reward to any Indian who should discover a place where we might be able to cut a path for the transport of boats and luggage, and a still higher reward was held out to the coloured people who made part of my crew. In consequence of this, expeditions were undertaken every day; but the more I examined the ground, the more I was persuaded that it was impossible to construct a path, with willing hands, in a shorter period than from six to eight weeks; and that our Indians were not willing, we had now daily proofs: the Caribs, by far the most numerous of my crew, who from the commencement behaved in a manner which I could not explain, now threatened to depart: they demanded to receive provisions like the other Indians, though their cassava fields, had they been willing, would have afforded us sustenance for six months, and as policy directed me not to quarrel with them, I was obliged to give them allowances in rice and other provisions; and the inroad which was consequently made in my stores caused a well-founded apprehension that even if I dismissed the Caribs my provisions would have failed in less than three weeks. My companions urged, therefore, my return; and as the perilous situation we were placed in was evident, I consented with a heavy heart: at a long consultation we had on the subject, I expressed the hope that the ascent of the river Berbice, which is more inhabited by friendly Indians, might lead us perhaps to the accomplishment of our design of crossing the impediment of the cataracts, and of penetrating to the chain of mountains in the second parallel of latitude. I occupied myself the following days with surveying the lower basin, and in extending the operations to that point where the river meets the first impediments. The result of this survey, in which the distance was measured by sound, was that this tract of rocks extends about five miles and a half north and south, and is probably connected with the range of boulders in the Essequibo, about this parallel. Through the whole defile, rapid, or rather fall, followed upon fall, and we had at one time four cascades in view following each other in succession. Shortly

after twelve o'clock we reached the point where the river, with a breadth of 900 yards, flowed smooth and uninterruptedly. I here placed Englefield's barometer, and found this spot 100 feet above our encampment, which I had previously ascertained to be 430 feet above the level of the sea. The fruits of my prolonged survey were not only a knowledge of the country above the cataracts, but likewise the discovery of several new orchidea and some cacti, which I had not before seen, as also the knowledge of the extensive tract of boulders, the geological details of which I reserve for another opportunity. The means of several observations gave me, as position of our encampment,  $4^{\circ} 21\frac{1}{2}'$  N.,  $57^{\circ} 35\frac{1}{2}'$  W.\*

*Oct. 23.*—This morning we unwillingly set out on our descent of the river. On our arrival at Tomatai, the Carib settlement, most of the Caribs absented themselves, and only a few with their chief, Smith, accompanied us to the post of Oreála. Shortly after our arrival, a large corial (about forty feet long), with Caribs from the river Wayombo, landed there, and exhibited a pass from the authorities at Nickierie, a Dutch settlement at the mouth of the Corentyn. We heard, to our great astonishment, that they purposed ascending the river, in order to cross over by land to the Essequibo, and thence to proceed to the Macúsie country, with the intention of trading for slaves: they openly asserted that this was their object, and showed us guns and other articles of trade for that purpose; but they likewise assured us that the Caribs of the Corentyn were to accompany them, and that the chief, Smith, had been for that purpose a few months ago at their settlement, in order to arrange matters. Our suspicions were thus verified, and the behaviour of the Caribs fully explained: under the idea that we were bound in the same direction, they had supposed that our presence would interfere with their design, and every deceit was used to prevent our crossing the cataracts. We discovered likewise that they had withheld from us the knowledge of a path where, by means of a creek, the falls might have been passed, and that even large corials might have been transported to the point of re-embarkation. After consulting whether we should return to the cataracts and force them to show us the passage, it became evident that now, more than ever, they would use every means to prevent our executing this design, and being so near the coast, I adhered to my former plan to ascend the Berbice, and thus another river of British Guayana would be explored, and our ultimate object of penetrating to the Sierra Accaray might be rendered easier.

Though the expedition up the Corentyn failed in accomplishing

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\* This series of cascades is about fifteen miles direct distance from the river Berbice, and within thirty miles of the Essequibo, at the point called the Rapids of Rap-poo.—See *Journal R. G. S.*, vol. vi., p. 236.—ED.

this great object, yet the knowledge acquired of this river—the fitness of its banks for colonization—the peculiar mineralogical formation in its vicinity—and the discovery of the possibility of Guayana possessing coal measures, are of some importance. The river, represented in all former maps as one of inferior size, I have found almost equal to the Essequibo, and its course as laid down in them from lat. 5° N., is ascertained to be the reverse of the truth; and where it is in them represented to have its sources, it is found 900 yards wide. Indeed, every circumstance considered, I come to the conclusion, that the three chief rivers of British Guayana probably have their sources in the same chain of mountains, within a short distance of each other, or possibly, they flow from a lake, of the existence of which I received new information from the Indians. Their report, however, is too vague and contradictory to deserve much confidence.

[In consequence of the unfavourable state of the weather in the month of September, 1836, when Mr. Schomburgk was at the mouth of the Corentyn, he was not able to effect a survey of the entrance of that river; yet being fully aware of the importance of such a survey to the mercantile interest of the colony, on his return from the expedition up the river Berbice, Mr. Schomburgk chartered a small schooner, and proceeded to the mouth of the Corentyn in June, 1837, and, overcoming many difficulties that were thrown in his way, he succeeded in surveying the entrance. As the result of this survey, Mr. Schomburgk has sent home a chart, on the scale of one inch and a quarter to a nautical mile, showing the positions of the chief points, the depth of water, the form of the mud-banks, the rise and set of the tides, &c. &c., both at the entrance of the Corentyn, and of its eastern affluent the Nickierie. The detailed account of the survey has not yet reached England; but from the chart, and some slight notices contained in Mr. Schomburgk's letter, we gather the following *data*, which are a valuable contribution to the hydrography of that coast, and may be useful to our commercial interests:—

	Lat. North.	Long. West.
Mary's Hope, at western entrance of the Corentyne (Plantation No. 49) . . . . .	6° 24'	57° 2'
Plantation Skeldon, on western bank . . . . .	5° 52'	57° 0'
Gordon Point, on eastern bank . . . . .	6° 11½'	56° 46'
R. Nickierie, on eastern bank (Battery) . . . . .	5° 57½'	56° 52½'
Parrot, or First Island—north end . . . . .	5° 52½'	56° 56½'
south end . . . . .	5° 44½'	56° 59'

The extreme width of entrance of the river, measured in a N.W. and S.E. line from Mary's Hope to Point Nickierie, and just within the mud-flat extending from the western shore, is ten miles.



Five miles within this line the river suddenly contracts, in the parallel of  $5^{\circ} 55'$ , where, from *Anamormisi* Creek on the west, to Bluff Point on the east, it is only four miles; and it retains this breadth, nearly in a south by west direction, for fifteen miles, as far as lat.  $5^{\circ} 40'$ , when it narrows to three miles, and bends to the S.S.E., as related in the account of the Ascent of the Corentyn.

Three miles to the southward of Point Bluff commences *Coruoboro*, or Parrot, or First Island, about seven miles long from north to south, with an average width of one mile, and lying on the eastern or Dutch side of the river, between which and the island is a general depth of nine feet at low water, with a channel three cables wide.

*Sailing-directions for the Entrance of the River Corentyn.*

The whole of the coast about the entrance of the river is low and wooded, with occasionally a sandy beach. On the western side, three miles to the northward of the Plantation Mary's Hope, or in lat.  $6^{\circ} 5' N.$ , a soft mud-flat, commonly called the Bar of the river, extends in a S.E. by E. direction (true), to the distance of seven miles and a half, with a depth over it, in every direction traversed by Mr. Schomburgk, of seven feet and a half at low water. Continuing in this south-easterly direction, across the entrance of the river, a channel of two miles wide, with eight feet and a half water, occurs; then a sandy patch of five feet (its centre exactly in  $6^{\circ} N.$  lat.) of about one mile long from north to south, by half a mile in breadth, and again a channel two miles wide with eight and a half feet water, between the sand and the Dutch coast, and either of these channels may be used by small craft bound to the Dutch port of Nickierie, taking care to avoid this patch of sand, of which the *lead*, if attended to, will give due warning. In the centre of the eastern channel, which should be preferred by vessels bound to the Dutch coast, a depth, gradually decreasing from seaward, of eleven, ten, and nine feet, at the distance of one mile and a half off shore, may be carried to the bar of the river Nickierie, which has a depth over it of eight feet; but as the entrance is only 200 yards wide, vessels that wish to run up the river half a mile to the settlement should only cross the bar with the Battery Point bearing between E. by S. and E.S.E., which will lead up to the anchorage off the fort in ten feet water, soft mud.

To return to the westward. From the south-eastern extremity of the before-mentioned mud-flat, which stretches from the western shore half across the river, a bank of sand (with only five feet water), seven miles and a half long by nearly two in width, extends to the southward directly in the centre of the river, leaving a channel two miles wide on either side, with nine and ten feet at

low water. The bank lies between  $6^{\circ} 2'$  and  $5^{\circ} 54\frac{1}{2}'$  N. lat. At its southern extremity this bank dries at half tide. Supposing, therefore, a vessel, not drawing more than nine feet water, bound to Skeldon or any plantation higher up the river, and desirous of entering on the western or British side, she may approach boldly in any direction at half flood (the proper time for entering) till the houses at Mary's Hope bear due *west*, at which time she must not be more than *three miles* off shore; and she should keep on this parallel till a remarkable, lofty, umbrella-shaped silk cotton tree (an excellent land-mark) bears S. by W. (true), when she may safely shape a due south course, in from ten to fifteen feet water, up the first or sea-reach of the river, varying her course as she ascends according to the winding of the stream, but as a general rule keeping the bold shore aboard.

As the wind is constantly from the eastward there can be no difficulty in entering or leaving the river, and by using the western entrance the great central sandbank, which is the chief danger, is left to windward. The current is strong in the wet season, from three to three and a half knots an hour, but as it sets N.N.E. and S.S.W., or nearly in the direction of the river, it is not of so much importance, yet should not be neglected; above all, pay strict attention to the lead.

In approaching from the eastward keep within one mile of the Surinam shore, gradually closing to half a mile as you approach Bluff Point, when shape a mid-channel course between Parrot Island and the western shore.

It may be seen, by inspecting all former charts of the entrance to this river, that the difficulties only commence where *they* place the southern points of the banks—in fact, prior to this, it is believed no survey of the river existed. Its value will be more apparent, when we consider that four estates on the British side of the Corentyn produce 2000 hogsheads of sugar annually; all of which, with the other productions, timber, &c. the planters are obliged to send to Berbice to be shipped, and for which purpose they are obliged to keep up schooners or droghers at a very great extra expense; whereas by the eastern channel, any vessel, drawing only ten feet water, might safely sail forty miles up this river, and ship the produce at once from the various estates on which it is grown.—ED.]

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